

### REMARKS

The Final Office Action of November 6, 2003 has been fully considered by the Applicants. In view of the following remarks, Applicants respectfully request the withdrawal of the rejections and issuance of a Notice of Allowance.

In the Office Action of November 6, 2003, the Examiner finally rejected pending claims 1, 3-15 and 18-20. Claims 1, 3-15 and 19 were rejected under 35 U.S.C. §103(e) (sic 103(a)) as being unpatentable over U.S. Patent No. 4,427,785 to Prochazka, et al., in view of U.S. Patent No. 5,742,123 to Nagayama, U.S. Patent No. 5,747,402 to Wei, et al., and U.S. Patent No. 4,033,743 to Scott, Jr., et al. With respect to claims 1, 3-5, 14 and 15, the Examiner stated:

Prochazka, et al. (U.S. 4,427,785) disclose translucent ceramic body and a method of its manufacturing, the method comprising:

densifying a ceramic body to form substantially translucent ceramic body which includes aluminum, the densifying process including heating the ceramic body under isostatic pressure up to 2100 kb/sq.sm (col. 7, lines 10-14) at a temperature 1600-1700 degrees C. (col. 7, lines 23-25).

Prochazka, et al. does not disclose the ceramic body includes about 99.9% aluminum;

Aluminum containing 0.5 weight percent of magnesia;

contacting of the substantially translucent ceramic body with a molten inorganic flux, which includes an alkali metal borate capable of dissolving the ceramics.

Nagayama (U.S. 5,742,123) teaches using isostatic pressure using starting material containing 99.9% aluminum (col. 27, lines 41-46).

Wei (U.S. 5,747,402) discloses aluminum containing 0.5 weight percent of magnesia (col. 1, lines 19-24 and Abstract).

Scott, Jr., et al. (U.S. 4,033,743) disclose contacting of the substantially translucent ceramic body with a molten inorganic flux (col. 3, lines 31-39) which includes an alkali metal borate (col. 4, lines 30-34) capable of dissolving the ceramics.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use starting material containing 99.9% aluminum and 0.5 weight percent of magnesia in the Prochazka densifying process and polish the Prochazka, et al. translucent ceramic body with a molten inorganic flux, as taught by Scott, Jr., et al. to further increase its optical transmission.

(Final Office Action, November 6, 2003, pages 2-3).

With respect to claims 6-13 and 19, the Examiner stated:

With regard to claims 6-13 and 19 Prochazka, et al. when modified by Nagayama, Wei (U.S. 5,747,402) and Scott, Jr., et al. disclose (Scott, Jr., et al.):

a molten flux bath with temperature less than 1000 degrees and oxidizing atmosphere (col. 4, lines 34-39) (claims 6-8);

coating the ceramic body and heating the ceramic body (col. 4, lines 11-19) (claim 9);

removing flux residue with an acid solution (col. 4, lines 24-26) (claim 10);

the alkali metal borate presented by  $(\text{Na}_2\text{O})_n(\text{B}_2\text{O}_3)_m$  (col. 4,

lines 38-48) (claims 11 and 12);  
the ceramic body is an arc tube (Abstract, lines 4-10) (claims 13 and 19).

(Final Office Action, November 6, 2003, page 3).

Claim 18 was rejected under 35 U.S.C. §103(a) as being unpatentable over Prochazka, et al. in view of Nagayama U.S. Patent No. 5,747,402 to Wei, et al. and Scott, Jr., et al. and further in view of U.S. Patent No. 5,861,714 to Wei, et al. The Examiner stated:

Claim 18 is rejected under 35 U.S.C. §103(a) as being unpatentable over Prochazka, et al. in view of Nagayama – Wei, et al. (U.S. 5,747,402) and Scott, Jr., et al. as applied to claim 12 above, and further in view of Wei, et al. (U.S. 5,861,714).

Prochazka, et al. when modified by Nagayama – Wei, et al. (U.S. 5,747,402) disclose all of the limitations except for the alumina containing magnesia, said magnesia at a concentration at 400-1500 ppm.

Wei (U.S. 5,861,714) discloses aluminum containing magnesia at a concentration at 800 ppm (col. 13, lines 8-22).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the Prochazka – Nagayama – Wei, et al. (U.S. 5,747,402) – Scott, Jr., et al. aluminum with the specified magnesia concentration, as taught by Wei (U.S. 5,861,714), to aid in process of sintering.

(Final Office Action, November 6, 2003, pages 3-4).

Claim 20 was rejected under 35 U.S.C. §103(a) as being unpatentable over Scott, Jr., et al. in view of Prochazka, et al., Nagayama, and Wei, et al. In rejecting claim 20, the Examiner contended:

Claim 20 is rejected under 35 U.S.C. §103(a) as being unpatentable over Scott, Jr., et al. (U.S. 4,033,743) in view of Prochazka, et al. and Nagayama – Wei, et al.

Scott, Jr., et al. (U.S. 4,033,743) disclose (Fig. 1) a discharge vessel (2) which defines a chamber and polished by immersing in a molten inorganic flux (col. 3, lines 31-38, col. 4, lines 10-14);

electrodes sealed (11, 22) into the ends of the chamber, and

a fill (inherently) sealed within the chamber.

Scott, Jr., et al. do not disclose the starting material consists of 99.9% aluminum and process of densifying aluminum by applying sufficient pressure and temperature.

Prochazka, et al. disclose densifying aluminum by applying sufficient pressure and temperature as applied to claim 1 above.

Nagayama and Wei, et al. (U.S. 5,747,402) respectively disclose the starting material consisting of 99.9% aluminum and containing 0.5 weight percent of magnesia.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture Scott, Jr., et al. vessel using the technology of Prochazka and the starting material as taught by Nagayama and Wei, et al. (U.S.

5,747,402), as an appropriate sintering technology for further polishing of the vessel.

(Final Office Action, November 6, 2003, page 4).

For the following reasons, Applicants traverse the above rejections.

The Examiner incorrectly relies on Nagayama. In each of the rejections, the Examiner relies on Nagayama and asserts that Nagayama teaches using starting material containing 99.9% alumina. The Examiner has also presented such arguments in prior Office Actions. In a Response to the Non-Final Office Action of June 20, 2003, Applicants submitted that Nagayama does not teach a starting material containing 99.9% alumina but rather teaches the use of alumina having a purity of 99.9%. Specifically, Applicants stated:

The Examiner states that Nagayama, at column 27, lines 41-46, teaches using isostatic pressure and using starting material containing 99.9% alumina. Nagayama actually teaches, in the referenced passage, alumina having a purity of 99.99%. It does not teach a starting material containing 99.9% alumina as alleged by the Examiner. Rather, at column 28, lines 5-18, Nagayama teaches adding distilled water, a dispensing agent, and a binder to the starting material. By contrast, the present invention claims a ceramic body including 99.9% alumina (claim 1). This amount is not disclosed, taught, or suggested by Nagayama.

(Response, August 20, 2003, page 2).

In response to Applicants arguments, the Examiner stated:

Applicant's arguments filed 08/25/2003 have been fully considered but they are not persuasive. Applicants argue that the starting material of the invention contains 99.9% alumina while the reference of the rejection (Nagayama) teaches 99.99% alumina.

However, claims 1 and 18 not 99.9% but "material including about 99.9% alumina". According to general meaning for a word "about", (The Heritage Dictionary, 4<sup>th</sup> Ed) the above mentioned limitation is interpreted as the starting material includes approximately 99.9% alumina. The amount 99.99%, suggested by Nagayama, meets the claim limitation.

(Final Office Action, November 6, 2003, pages 4-5).

Applicants submit that the Examiner's interpretation of Nagayama is incorrect and that Nagayama fails to teach a ceramic body having about 99.9% alumina. Even if the phrase "about 99.9% alumina" is interpreted as including "approximately" 99.9% alumina, such an interpretation does not change the nature of the claim language or allow Nagayama to meet the claim limitation. Whether the term "about"

or "approximately" is used, claims 1 and 18 refer to the amount of alumina in the ceramic body and not the purity of the alumina used. Contrary to the Examiner's assertion, Nagayama fails to teach the content as set forth in claims 1 and 18. Rather, Nagayama teaches using alumina having a high purity of 99.99%. See U.S. Patent No. 5,742,123, column 25, lines 66-67. The purity of the alumina used, however, does not necessarily equate to the amount of alumina used to make the ceramic body. For example, it could be possible to use 70% of alumina wherein the alumina has a purity of 99.99%. While Nagayama teaches the use of alumina having a purity of 99.99%, it completely fails to teach the amount of that high purity alumina used in the starting material.

Applicants also note that claim 1 (and 18) include the feature of a ceramic body having up to about 0.5% magnesia. That is, the amount of magnesia may be up to about 0.5%. It seems unlikely that the Examiner would also interpret (and in fact the Examiner has not interpreted) this limitation to mean using magnesia with a purity of 0.5%. Nor would a person skilled in the art interpret about 0.5% to mean the purity of the magnesia. Similarly, a person skilled in the art would not interpret "about 99.9%" alumina as referring to the purity. If the Applicants wanted to limit the alumina to alumina having a 99.9% purity then Applicants would have done so. Rather, the amounts recited in claims 1 and 18 clearly relate to the amount of alumina and magnesia used to formulate the ceramic body and are not directed towards the purity of such components<sup>1</sup>. Consequently, Applicants submit that the Examiner incorrectly interpreted the language of claims 1 and 18. Further, since Nagayama completely fails to teach the amount of (high purity) alumina, the combination of references cited by the Examiner fail to disclose each and every feature of claims 1 and 18 and any claims dependent therefrom and thus the claims are not obvious in view of the cited references. M.P.E.P. §2143.03. More particularly, Nagayama discloses an end-cap having very high tungsten contents as a result of layering multiple tungsten/alumina slurry's (see for example, Tables 4-6, column 17, lines 10-22; and Table 7). For at least this reason, Applicants submit that the rejections of claims 1, 3-15 and 18-20, which all rely on Nagayama, should be withdrawn.

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<sup>1</sup> Applicants note that the claims in no way limit the type of alumina that is used to formulate the ceramic body. That is, the claims do not limit the purity of the alumina used. Whatever type of alumina is used, the claims merely recite the amount of that alumina in the ceramic body be "about 99.9%."

Simply, the combination of references completely fails to teach the ceramic body set forth in the pending claims. First, Nagayama fails to teach an alumina content of about 99.9%. As such the combination of references fail to teach or suggest every feature of the claims and, therefore, cannot anticipate the claims. M.P.E.P. §2143.03. Second, the Examiner has not provided any motivation to combine the cited references to arrive at the present invention. Applicants submit that there is, in fact, no motivation to combine the references. There is disparity between the 99.99% pure alumina of Nagayama and the inclusion of 99.9% alumina in the present body. Additionally, because of the disparity between the constituents taught in Prochazka, et al. and the constituents taught in the remaining references, the combination of references would not be made. Moreover, the skilled artisan would have no reason to export such a significantly divergent composition to function in the Prochazka process.

Thus, in view of the above remarks, Applicants submit that claims 1, 3-15 and 18-20 are not obvious in view of the references cited by the Examiner. Applicants submit that the present application is in condition for allowance and respectfully requests that the rejections be withdrawn.

It is believed that no fees are due in connection with this response. If, however, any additional fees are due, Applicants authorize deduction of that fee from Deposit Account No. 06-0308.

Respectfully submitted,  
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